ABSTRACT OF THE DISCLOSURE

In order to provide DSL service to more subscribers, at least part of the DSLAM is provided at a location, e.g. an outside plant interface unit (16), that is intermediate the subscriber premises (10_1,... 10_N) and the central office (13) housing the remainder of the DSLAM. An optical fiber conveys signals between the two parts of the DSLAM, thus reducing the length of the twisted-wire portion of the subscriber loop. To reduce complexity and equipment costs, access apparatus for connecting a plurality of DSL lines to a data network (28) comprises a plurality of interface units connected to a plurality of DSL lines, respectively, for converting high frequency analog signals to digital signals, or vice versa; at least one digital signal processor (DSP) modem (30) for processing the digital signals and routing the processed signals to the data network, and for processing signals from the data network and supplying the resulting digital signals to the interface units, respectively. A session switch (92) my be provided for making virtual connections between respective ones of the interface units whose associated DSL lines are active and the DSP modems. The session switch maintains each connection for the duration of a session. With such an arrangement, a pool of DSPs may be shared by a much larger number of DSL lines.